III. CLAIM AMENDMENTS

1. (Currently Amended) A contactless detection cell ~~(15, 23)~~ for detecting an electrical property of one or more sample compounds in a flow path, said contactless detection cell ~~(15, 23)~~ comprising:

a detection channel arranged in the flow path;

a transmitter electrode ~~(16, 24)~~ adapted for capacitively coupling an AC current into ~~a~~ the detection channel ~~of the flow path~~;

a receiver electrode ~~(17, 25)~~ adapted for receiving the AC current that has been coupled into the detection channel;

wherein an inner cross-section in at least a section of the detection channel is different than an inner cross-section of the flow path towards the detection channel, and~~.~~

wherein, at respective sites of the detection channel where the transmitter electrode and the receiver electrode are located, the detection channel's inner cross-section is larger than the detection channel's inner cross-section in a portion between the electrodes.

2. (Currently Amended) The detection cell of claim 1, wherein the inner cross-section of the detection channel is narrowed between the electrodes in a way that the electrical resistance of the sample volume between the transmitter electrode and the receiver electrode is increased.

3. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the transmitter electrode and the receiver electrode are ~~axially~~ separated from each other along an axis of ~~in~~ the flow path.

4. (Currently Amended) The detection cell of claim ~~1 or any one of the above claims~~3, wherein the axial separation between the electrodes is sufficiently

large for avoiding or at least reducing cross-coupling between the transmitter electrode and the receiver electrode.

5. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein within the entire detection channel, the inner cross section of the detection channel is kept small.

6. (Cancelled)

7. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the detection channel comprises a ~~the~~ geometry ~~of the detection channel is~~ being axially varied in a way that an hour-glass shaped geometry of the detection channel is obtained.

8. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the detection channel is implemented by means of a capillary with a reduced inner cross-section in the portion between the transmitter electrode and the receiver electrode.

9. (Currently Amended) The detection cell of claim 7 ~~or any one of the above claims~~, wherein in the portion of the detection channel between the electrodes, the inner diameter of the capillary is equal to about 0.1 µm to 200 µm, preferably 1.0 µm to 20 µm.

10. (Currently Amended) The detection cell of claim 7 ~~or any one of the above claims~~, wherein in the portion of the detection channel between the electrodes, the ratio of the capillary's outer diameter to the capillary's inner diameter is equal to about 1.1 to 50, preferably 1.5 to 10.

11. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the detection channel shape is implemented using microstructuring technologies as common for making microfluidic chip devices.

12. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the detection channel is implemented as a part of a microfluidic chip device.

13. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the electrical property is at least one of: conductivity, complex conductivity, impedance, resistance, reactance, relative permittivity.

14. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the detection cell is adapted for detecting conductivity of the sample compounds.

15. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the one or more sample compounds have been separated in a preceding separation flow path.

16. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the inner cross-section of the detection channel is smaller than the inner cross-section of the flow path towards the detection channel.

17. (Currently Amended) The detection cell of claim 1 ~~or any one of the above claims~~, wherein the inner cross-section of the detection channel is greater than the inner cross-section of the flow path towards the detection channel.

18. (Currently Amended) ~~A~~ The ~~contactless conductivity~~ detection cell of claim 1 for detecting conductivity of sample compounds that have been separated in a preceding separation flow path, ~~said contactless conductivity detection cell comprising~~wherein:

~~a transmitter electrode adapted for capacitively coupling an AC current into a detection channel;~~

~~a receiver electrode adapted for receiving the AC current that has been coupled into the detection channel, with~~ the transmitter electrode and the receiver electrode being ~~axially~~ separated along an axis of the flow path; and

~~a detection channel, wherein~~ the inner cross-section of the detection channel between the transmitter electrode and the receiver electrode is smaller than the inner cross-section of the separation flow path.

19. (Currently Amended) A separation system comprising

a separation flow path ~~(14, 22)~~ adapted for separating sample compounds of a given sample;

a contactless detection cell ~~(15, 23) according to any of claims 1 to 17~~for detecting an electrical property of one or more sample compounds in the flow path, said contactless detection cell comprising:

a detection channel arranged in the flow path;

a transmitter electrode adapted for capacitively coupling an AC current into the detection channel;

a receiver electrode adapted for receiving the AC current that has been coupled into the detection channel;

wherein an inner cross-section in at least a section of the detection channel is different than an inner cross-section of the flow path towards the detection channel, and

wherein, at respective sites of the detection channel where the transmitter electrode and the receiver electrode are located, the detection channel's inner cross-section is larger than the detection channel's inner cross-section in a portion between the electrodes.

20. (Original) The separation system of claim 19, wherein the separation system is at least one of: an electrophoresis system, a liquid chromatography system, an electrochromatography system, or a combination thereof.

21. (Currently Amended) The separation system of claim 19 ~~or any one of the above claims~~, wherein the separation system is adapted for separating and/or analyzing ions.

22. (Currently Amended) A method for increasing the sensitivity of a contactless detection cell ~~(15, 23)~~, said detection cell comprising a transmitter electrode ~~(16, 24)~~ adapted for capacitively coupling an AC signal into a detection channel and a receiver electrode ~~(17, 25)~~ adapted for receiving an AC response signal in response to the AC signal that has been coupled into the detection channel, ~~and with~~ comprising:

adapting said detection cell ~~being adapted~~ for detecting an electrical property of one or more sample compounds~~, the method comprising a step of:~~; and

reducing, in at least a section of the detection channel, the inner cross-section of the detection channel relative to the inner cross-section of the flow path towards the detection channel.

23. (Original) The method of claim 22, wherein the electrical property is at least one of: conductivity, complex conductivity, impedance, resistance, reactance, relative permittivity.

24. (Currently Amended) The method of claim 22 ~~or any one of the above claims~~, wherein the detection cell is adapted for detecting conductivity of the sample compounds.

25. (Currently Amended) The method of claim 22 ~~or any one of the above claims~~, wherein the one or more sample compounds have been separated in a preceding separation flow path ~~(14, 22)~~.

26. (Currently Amended) The method of claim 22 ~~or any one of the above claims~~, wherein the transmitter electrode and the receiver electrode are axially ~~separated~~ from each other along an axis of ~~in~~ the flow path.

27. (Currently Amended) The method of claim 22 ~~or any one of the above claims~~, wherein the electrical resistance of the sample volume between the transmitter electrode and the receiver electrode is increased by narrowing the inner diameter of the detection channel between the electrodes.

28. (Currently Amended) The method of claim 22 ~~or any one of the above claims~~, wherein the detection channel's volume is reduced while keeping the distance between the electrodes sufficiently large for avoiding or at least reducing cross-coupling between the transmitter electrode and the receiver electrode.

29. (Currently Amended) The method of claim 22 ~~or any one of the above claims~~, comprising ~~a step of~~ increasing the capacitive coupling between the electrodes and the detection channel by increasing the detection channel's inner diameter at the sites of the detection channel where the transmission electrode and the receiver electrode are respectively located.